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R. A. Harper, and "Present Status of the Problem of the Effect of Radium Rays on Plant Life," by C. Stuart Gager.

Wednesday, September 8, was to be given up to a study of the flora of sand dunes and salt marshes on Crooke's Point, S. I., the excursion being planned in cooperation with the Staten Island Association of Arts and Sciences. On Thursday the reading of papers was to be resumed, including Clifford H. Farr on "Cell-Division: Bipartition and Quadripartition in Pollen Mother-Cells," and "Ecology and the New Soil Fertility," by Charles B. Lipman; John K. Small on "Recent Explorations in Southern Florida"; H. Hus on "A New Interpretation of Fascination"; P. A. Rydberg on "Life Zones in the Rocky Mountains"; Fred J. Seaver on "Bermuda Fungi," and Karl F. Kellerman on "Cooperation in the Control of Plant Diseases."

Following tea at the mansion, an inspection of the nurseries, arboretum, propagating houses, conservatory range and the Bronx River valley as far as Hemlock Forest will be made. A smoker at the Faculty Club, Columbia University, will be held in the evening. On Friday, September 10, the entire day will be devoted to a visit to the pine barrens of New Jersey, under the guidance of the field committee of the Torrey Botanical Club. On Saturday the delegates will visit the Brooklyn Botanic Garden.

#### SCIENTIFIC NOTES AND NEWS

DR. JACQUES LOEB, of the Rockefeller Institute for Medical Research, has been elected a foreign fellow of the Linnean Society, London.

PROFESSOR W. A. BONE has been elected president of the chemistry section of the British Association at the meeting held in Manchester this week, taking the place of Professor H. B. Baker who is unavoidably prevented from attending the meeting.

THE South African medal, founded by the British Association in 1905, for scientific research in South Africa, was awarded at the Pretoria meeting of the South African Asso-

ciation, to Mr. C. P. Lounsbury for his entomological investigations.

PROFESSOR J. C. ARTHUR, who has been in college and experiment-station work for nearly forty years, and for the last twenty-eight years has held the chair of professor of vegetable physiology and pathology in Purdue University and chief of the botanical department of the Indiana Agricultural Experiment Station, retires on the first of September to become professor emeritus of botany in the same institution under the provisions of the Carnegie Foundation. He will continue the researches on plant rusts which have been in progress for a number of years. His successor in the experiment station will be Professor H. S. Jackson, of Corvallis, Ore.

THE *Experiment Station Record* states that there has been held at the Iowa College of Agriculture a special convocation in honor of those members of the faculty who have been in service for at least a quarter of a century. The guests of honor were Vice-president E. W. Stanton, in service since 1874; General J. R. Lincoln, commandant, Henry Knapp, secretary, both in service since 1883; A. A. Bennett, professor emeritus of chemistry, in service since 1885, and Dr. L. H. Pammel, professor of botany and botanist, in service since 1889.

It is stated in *Nature* that the sum of £140 has been given to the Royal Society of Arts by Mr. R. Le Neve Foster for the purpose of founding a prize in commemoration of his father, Mr. Peter Le Neve Foster, who was secretary of the society from 1853 to 1879. The council has decided to offer the prize (consisting of £10 and the society's silver medal) for a paper on "Zinc: Its Production and Industrial Applications."

THE Vienna Academy of Sciences has made a grant of about \$800 to Professor R. Poehch to enable him to conduct anthropological researches among the various races comprising the Russian prisoners of war.

It is stated in *Terrestrial Magnetism* that M. Lecointe, director of the Royal Observatory of Belgium, at Uccles, near Brussels, is at

present interned in Holland. He had served in the war as a major of artillery in the Belgian army, and took part in the retreat from Antwerp.

DR. WARMBOLD, of Berlin, has been appointed rector of the Agricultural School at Hohenheim.

PROFESSOR SCHMIDT, of Marburg, has been awarded the doctorate of engineering by the Brunswick School of Technology, in recognition of his services to pharmaceutical chemistry.

PROFESSOR OPPENHEIM, of Berlin, has been made an honorary member of the Buenos Aires Society for Psychiatry and Neurology.

HENRY G. KNIGHT, dean of the Wyoming College of Agriculture and director of the station, O. L. Prien, veterinarian, and J. E. McWilliams, acting animal husbandman, have been granted a year's leave of absence beginning September 1, to be spent in study at the University of Illinois, Northwestern University and the Michigan Agricultural College, respectively. President C. A. Duniway, of the university, will act as director of the station during this period.

WE learn from *Nature* that a munitions inventions branch of the British ministry has been constituted, with Mr. E. W. Moir as comptroller. The branch will have the duty of considering projects for inventions relating to munitions for warfare on land or matters appertaining thereto. The comptroller and staff of the branch will be assisted in their work of examination, and, if thought necessary, in the investigation and development of any projects that may be considered worthy of being developed, by a panel of honorary scientific and other experts. The following have accepted Mr. Lloyd George's invitation to act on this panel: Colonel Goold Adams, Mr. Horace Darwin, Mr. M. Duckham, Mr. W. Duddell, Dr. S. Z. de Ferranti, Dr. R. T. Glazebrook, Sir R. Hadfield, Dr. J. S. Haldane, Colonel N. B. Heffernan, Sir A. Kennedy, Mr. F. W. Lanchester, Dr. A. P. Laurie, Professor Vivian B. Lewes, Mr. M. Longridge, Mr. W. H. Maw, Sir Hiram Maxim, Captain

Moore, Sir H. Norman, Mr. F. G. Ogilvie, Major-General G. K. Scott-Moncrieff, Mr. W. Stokes, Mr. J. Swinburne, Sir J. J. Thomson, Mr. A. J. Walter, Mr. C. J. Wilson.

THE president of the British board of agriculture and fisheries has appointed a committee consisting of Lord Middleton, chairman, Mr. Henry Chaplin, Sir Ailwyn Fellowes, the Hon. Alexander Parker, Major Sir M. Burrell, Bart., Sir G. Greenall, Bart., and Captain M. S. Adye to consider and advise the board as to the steps which should be taken to secure the production and maintenance in England and Wales of a supply of horses suitable and sufficient for military purposes. Mr. E. B. Wilson, of the board of agriculture and fisheries, has been appointed secretary of the committee.

DR. HERMAN FISCHER, of the German Hospital, New York, will head an expedition, consisting of twenty surgeons and nurses, to be sent under the auspices of the "American Physicians Committee" to Germany and Austria. The expedition acts in cooperation with the American Red Cross.

JULIUS VON PAYER, the distinguished polar explorer and artist, has died in Vienna at the age of seventy-three years. He was a member of the Austrian Antarctic expedition which in 1871 discovered Franz Joseph Land.

PROFESSOR GUIDO GOLDSCHMIEDT, director of the first chemical institute of the University of Vienna, well known for his work in organic chemistry, died, after a prolonged illness, on August 6, at the age of sixty-five years. Professor and Mrs. Goldschmiedt visited this country in 1912, at the time of the Eighth International Congress of Applied Chemistry, and made many friends in scientific circles.

THERE have been killed in the war Dr. Emil Lask, associate professor of philosophy at Heidelberg; Dr. Waldemar Conrad, docent for philosophy at Halle; Dr. Hugo Schultze, scientific assistant in the Reichsanstalt; Professor Bartel, director of the Archeological Institute of Frankfort; Dr. Deimler, docent in the Munich School of Technology, and Dr. O. Bondy, docent for gynecology in the University of

Breslau, and Dr. Karl Muenk, chemist in the Prussian Geological Survey.

It is said that the Nobel prizes for the present year will not be awarded. From next year the prizes will be reduced by about \$5,000, representing the amount of the new Swedish defence tax.

In a letter to the London *Times*, Sir Henry E. Roscoe, who was president of the British Association for the Advancement of Science when it met in Manchester twenty-five years ago, writes: "The pressing importance of the organization of scientific method and research has now become recognized both by government and the public. Your columns have been generously open to distinguished scientific opinion as to this necessity. The more important scientific societies are busily engaged in forming committees of their members to aid government departments, whilst these latter have called in specially qualified experts from all branches of scientific inquiry to aid ministers and departmental officials in carrying out the new duties which the present position entails. So far, so good. But more remains to be done. A general conference of the leaders and workers in British science needs to be added. Of the importance of such conference and of the ensuing personal contact at the present moment there can not be two opinions. Such an opportunity will present itself at the forthcoming eighty-fifth meeting of the great annual Congress of British Science to be held in Manchester on September 7. This year the meeting will be stripped of all but its scientific activities, and these, if properly utilized, can not fail to be of essential use to the country, for it is by the personal intercourse of scientific men of all kinds that stimulus is aroused and progress made. It is, therefore, confidently expected that at the September meeting every branch of British scientific activity will be fully represented, so that the expression of their united opinion may be given with no uncertain voice."

THE board of directors of the American Institute of Electrical Engineers, as we learn from the *Electrical World*, held in New York on August 10, its first meeting of the adminis-

trative year which began on August 1. President John J. Carty announced his appointments on the various institute committees for the administrative year. The chairmen of the committees appointed are as follows: Finance, Mr. J. Franklin Stevens, Philadelphia, Pa.; library, Dr. Samuel Sheldon, Brooklyn, N. Y.; meetings and papers, Mr. L. T. Robinson, Schenectady, N. Y.; editing, Professor H. H. Norris, New York; board of examiners, Dr. A. S. McAllister, New York; sections, Mr. H. A. Hornor, Philadelphia, Pa.; standards, Professor C. A. Adams, Cambridge, Mass.; code, Mr. Farley Osgood, Newark, N. J.; law, Mr. G. H. Stockbridge, New York; power stations, Mr. C. F. Uebelacker, New York; transmission, Mr. P. H. Thomas, New York; railway, Professor D. C. Jackson, Boston, Mass.; protective apparatus, Dr. E. E. F. Creighton, Schenectady, N. Y.; electric lighting, Dr. Clayton H. Sharp, New York; telegraphy and telephony, Mr. G. M. Yorke, New York; industrial power, Mr. David B. Rushmore, Schenectady, N. Y.; use of electricity in marine work, Mr. C. S. McDowell, New York; electro-chemistry, Professor A. F. Ganz, Hoboken, N. J.; electrophysics, Mr. John B. Whitehead, Baltimore, Md.; records and appraisals of properties, Mr. Philander Betts, Newark, N. J.; educational, Professor V. Karapetoff, Ithaca, N. Y.; public-policy committee, Mr. Calvert Townley, New York; development of water-powers, Mr. Calvert Townley, New York; patents, Mr. Ralph D. Mershon, New York; membership, Mr. W. A. Hall, Lynn, Mass.; historical museum, Mr. T. C. Martin, New York; United States national committee, International Electrotechnical Commission, Mr. C. O. Mailloux, New York; relations of consulting engineers, Dr. L. B. Stillwell, New York; code of principles of professional conduct, Professor George F. Sever, New York; hazards from lightning, Professor Elihu Thomson, Swampscott, Mass.; reserve corps of engineers, Mr. Bion J. Arnold, Chicago, Ill.; constitutional revision, Mr. Bancroft Gherardi, New York. Representatives were also appointed on various joint committees and other bodies.

OWING to the increasing demand, on the part of astronomers, chemists and physicists, for accurate values of the wave-lengths of the lines in the spectra of iron and other elements, the Bureau of Standards has taken up the work of determining standards of wave length. This work is being done in accordance with the recommendations of the International Wave-length Committee. The spectrograms were obtained in Marseilles in the laboratories of Buisson and Faby, the pioneers in this work. The plates were measured at the Bureau of Standards. This is rather a difficult region of the spectrum to observe, lying entirely in the ultra-violet. Apparatus necessary to do this work has recently been installed in the Bureau of Standards, and wave-length determinations of the highest accuracy are being made throughout the spectrum, including those rays which are too short to be visible and also those which are longer than any that the eye can see. A pamphlet upon this subject has just been issued as Scientific Paper No. 251, copies of which may be obtained without charge from the Bureau of Standards, Washington, D. C.

THE Paris correspondent of the London *Times* writes that the Pasteur Institute presents rather a dead appearance at present. Most of the laboratory assistants have departed for the front, where, indeed, two doctors have met their death. There has been in consequence a slackening of experimental work, as well as a corresponding diminution in the running expenses of the establishment. A large part of the famous menagerie has disappeared. Quantities of rabbits, rats and mice still exist, but the ourang-outangs, amongst others, have ceased to be, as they were expensive to keep as prospective fields for experiment after the war. A large department of the institute is now engaged in cultures for serums for use on the battlefield.

THE annual grants made by parliament specifically for scientific investigations and related services amount to about £100,000, and the details of the estimates for 1915-16 are shown in the subjoined table which we reproduce from *Nature*.

Royal Society:

(i) (a) Scientific Investigations .....	£4,000
(b) Scientific Publications .....	1,000
(ii) Magnetic Observatory at Eskdalemuir .....	1,000
(iii) National Physical Laboratory .....	7,000
(iv) Aeronautical Section of the National Physical Laboratory .....	9,425
Meteorological Office .....	22,500
Royal Geographical Society .....	1,250
Royal Academy of Music .....	500
Royal College of Music .....	500
Marine Biological Association of the United Kingdom .....	500
Royal Society of Edinburgh .....	600
Scottish Meteorological Society .....	100
Royal Irish Academy .....	1,600
Royal Irish Academy of Music .....	300
Royal Zoological Society of Ireland .....	500
Royal Hibernian Academy .....	300
British School at Athens .....	500
British School at Rome .....	500
Royal Scottish Geographical Society .....	200
National Library of Wales .....	8,200
National Museum of Wales .....	17,300
Solar Physics Observatory .....	3,000
British Academy .....	400
School of Oriental Studies .....	1,500
North Sea Fisheries Investigation .....	1,250
Transantarctic Expedition, 1914-15 .....	5,000
Edinburgh Observatory .....	1,657
	<hr/> £90,582

THE Dominion of Canada has, as we learn from the *Experiment Station Record*, appropriated \$3,308,000 for agriculture for the year 1915-16, \$785,000 of which is for the maintenance of experiment farms, \$550,000 for the development of the live-stock industry, \$540,000 for the "health of animals," \$280,000 for exhibitions, \$275,000 for the administration and enforcement of the meat and canned-foods act, and \$200,000 for the encouragement of cold-storage warehouses. The appropriation includes \$150,000 for the development of the dairying industries and the improvement in transportation, sale and trade of food and other agricultural products, \$140,000 to enforce the seed act, \$113,000 for the fruit branch, \$100,000 for the administration and enforcement of the destructive insect and pest act, \$25,000 for the administration and carrying out of the provisions of the agricultural-in-

struction act, \$25,000 for the National Biological Laboratory, \$20,000 to assist in the maintenance of the International Institute of Agriculture, \$20,000 for entomology, \$15,000 for publications, and \$70,000 for exhibits, repairs, etc. A further \$900,000 is allotted under the agricultural-instruction act. The new building at the Ontario Veterinary College is now in use. It is a five-story brick structure with 134-foot frontage and 900,000 cu. ft. capacity, and cost about \$250,000. It contains several large laboratories, an assembly room seating 500, an infirmary for horses, offices, etc. At the Nova Scotia Agricultural College, a new science building 130 by 50 feet, with laboratories for chemistry, soil physics, entomology, plant diseases and home economics, an assembly hall seating 250, offices, classrooms, etc., is nearing completion.

THE Forest Service has sent a warning that more than half of the forest fires in the United States are due to carelessness or other preventable causes, starting from campers, railroad locomotives, brush burning, incendiaries and sawmills. This statement is based on an analysis of statistics compiled from the forest records of the last season, when more than 7,000 fires were reported on national forests alone and approximately 10,000 on state and private holdings in the eighteen states which received federal cooperation in fire protection under the Weeks law, namely, Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, New Jersey, Maryland, West Virginia, Kentucky, Michigan, Wisconsin, Minnesota, South Dakota, Montana, Idaho, Washington and Oregon. Forest fires destroy millions of dollars' worth of timber and other property every year, and in some years cause considerable loss of life. It has been estimated from the best information obtainable that forest fires last year burned over an area of approximately 6,000,000 acres with a total loss of at least \$9,500,000.

*Nature* states that the Ipswich Museum has for some time past made a very strong feature of the department of prehistoric archeology, and has collected extensively from the uniquely rich district of East Suffolk. The mu-

seum collections now include a large and representative series of pre-Paleolithic and Paleolithic flint implements, and also numerous examples of specimens referable to the later Cave and Neolithic periods. Among the later additions may be noted a large series of implements, bones, etc., from the Grimes Graves flint mines, Moustair flints from Baker's Hole pit in the Thames Valley, and implements of different ages presented by Dr. A. E. Peake and Rev. H. G. O. Kendall. The museum authorities have just purchased the entire series of local specimens, and the Paleolithic implements from the Dovercourt gravels collected by the late Lieutenant-Colonel Underwood, of Ipswich, and these make a very valuable addition to the collections. The skeleton of the Neolithic (or early Bronze age) youth found with an ornamented drinking vessel by Mr. Reid Moir at Wherstead, near Ipswich, is now on exhibition, together with other interesting human skulls, and the remains of extinct animals.

THE Bureau of Standards has published a paper entitled "Characteristics of Radiation Pyrometers," giving the results of careful study of this type of temperature measuring instrument. Such a study was considered urgent on account of the extensive use of radiation pyrometers in the technical industries. These instruments are widely used in the temperature control of the various processes involved in iron and steel manufacture, alloy foundry work, glass, ceramics and brick manufacture, smelting, gas works, steam generation, lamp manufacture, etc. Many of the instruments examined show different temperature readings for different focusing or sighting distances. Errors thus occasioned may amount to several hundred degrees. The effect of dirt upon the lenses and mirrors is of serious importance. The question as to whether the pyrometer absorbs all the heat radiation falling upon it is discussed, and the theory of the instrument, and the connection of the behavior of the pyrometer with the theoretical radiation laws are given. The Bureau receives a large number of these instruments for test and standardization, from various

technical industries located throughout the country. Heretofore this testing required about three days for a single instrument on account of the difficulty in heating a furnace to an exactly uniform temperature. A new method has now been developed which permits a satisfactory standardization of a radiation pyrometer within one hour. Many suggestions are given for minimizing the errors to which the pyrometer is subject, and it is shown that this type of instrument suitably designed, adequately calibrated, and correctly used, is a trustworthy pyrometer having many advantages over other types of temperature measuring devices, both for scientific and technical use.

THE government's herd of buffalo on the Wichita National Forest, in Oklahoma, which is also a federal game preserve, has been increased by the arrival of ten calves, according to a report received by the Forest Service from the supervisor in charge. The herd, which now comprises sixty-two specimens of the almost extinct bison, is in good condition, says the supervisor, and promises to continue increasing at a rapid rate. Eight of the calves are females, bringing the number of heifers and cows up to thirty. The bulls number thirty-two and have been placed by themselves in a pasture which has just been fenced in for them. Three years ago the buffalo herd on the Wichita Forest was little more than half as large as it is now. It is said that the other game animals in the preserve, including the elk and antelope, also are increasing, due to the protection afforded, not only against hunters, but against wolves, wild cats and other predatory animals, which committed serious depredations from the establishment of the preserve in 1905 until measures were taken to stop them. In protecting the game from predatory animals, the wardens and forest officers are also promoting the interests of local stockmen, who graze several thousand head of cattle on certain allotted areas within the preserve.

*Nature* says of the Harvard College Observatory: "Anything concerning this famous institution can not fail to be of interest, and thus we welcome a reprint from the *Harvard*

*Alumni Bulletin*, March 10, 1915, of two articles, one by the director, Professor Pickering, and the other over the initials 'J. D. M.' dealing with the observatory and its work respectively. Founded in 1840 by W. C. Bond, with the help of thirty subscriptions of £20 each, the endowments now amount to £200,000, and the annual income exceeds £10,000, yet, we are told, 'there has never been a time . . . when funds . . . were needed more than they are to-day.' In addition to the well-known Arequipa Station in Peru, where the 24-in. photographic doublet has been mounted, a station in Jamaica has recently been founded for visual work. No fewer than seventy complete quarto volumes of *Annals* have been published and eight others are in preparation, whilst about 200 circulars have been issued. Concerning the progress of the Draper Catalogue, we are informed that down to March 1, 1915, Miss Cannon had classified no fewer than 188,350 stellar spectra."

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#### UNIVERSITY AND EDUCATIONAL NEWS

CAPTAIN C. F. BALLEINE, fellow of Exeter College, Oxford, who was killed in action on July 2, bequeathed £1,000 to the college.

ACCORDING to the London *Times* Sir A. H. Church has bequeathed to fellows of Lincoln College, Oxford, £500; to the Waynflete professor of mineralogy in the university £100 for the purchase of apparatus and mineral specimens, together with the testator's optical instruments, mineral specimens and chemical apparatus; and £100 to the curators of the Ashmolean Museum.

DR. T. C. HEBB, professor of physics at the Northern State Normal School, Marquette, Michigan, has been granted his sabbatical year and will devote it to study at Columbia University.

NEW appointments at Bedford College, London, as we learn from *Nature*, include: assistant lecturer in physics, Miss M. O. Saltmarsh; demonstrator in physics, Miss M. Baxter; demonstrators in physiology, Miss Hartwell and Miss Tweedy; demonstrator in geology, Miss I. Lowe.